Running the Wildland Fire Assessment Tool with the FlamMap Module x64

By default, the WFAT Setup Wizard loads a 32 bit FlamMap module along with the rest of WFAT, regardless of whether the computer has 32 bit or 64 bit architecture. With the 32 bit FlamMap module, it's important to note that it is recommended that the input ArcGRIDS be no larger than 4 million pixels. This will keep the landscape file (lcp) that is generated small enough that the 32 bit FlamMap module can load it into RAM without exceeding the 32 bit address space. There are two options for working around this size restriction when working with larger ArcGRIDS:

1. Clip the input grids into smaller pieces that contain less than 4 million pixels.
2. Install WFAT's 64 bit FlamMap module.

Prerequisites for installing the 64 bit FlamMap module

In order to install the 64 bit FlamMap module, the computer it is being installed on must be a 64 bit computer which is running a 64 bit Windows operating system. One way to tell if your computer is running a 64 bit operating system is to check your computer's properties. To bring up your computer property dialog box, run Windows Explorer and right click on **Computer**, then select **Properties** from the context menu.

Fig 1 - The Windows 7 Computer Properties dialog box showing that the computer has a 64 bit Operating System.

Under Windows 7 and Vista, check the *System* > *System Type* property to tell whether your computer is running a 64-bit operating system. Another important piece of information on the Computer Properties dialog box is the *System* > *Installed Memory (RAM)* which will indicate how many Gigabytes of RAM is installed on the computer.

64 bit FlamMap Module Installation Instructions

Before installing WFAT's 64 bit FlamMap module, WFAT must be installed. To verify that WFAT has been installed go to **Start > Control Panel > Uninstall a Program** as shown below.

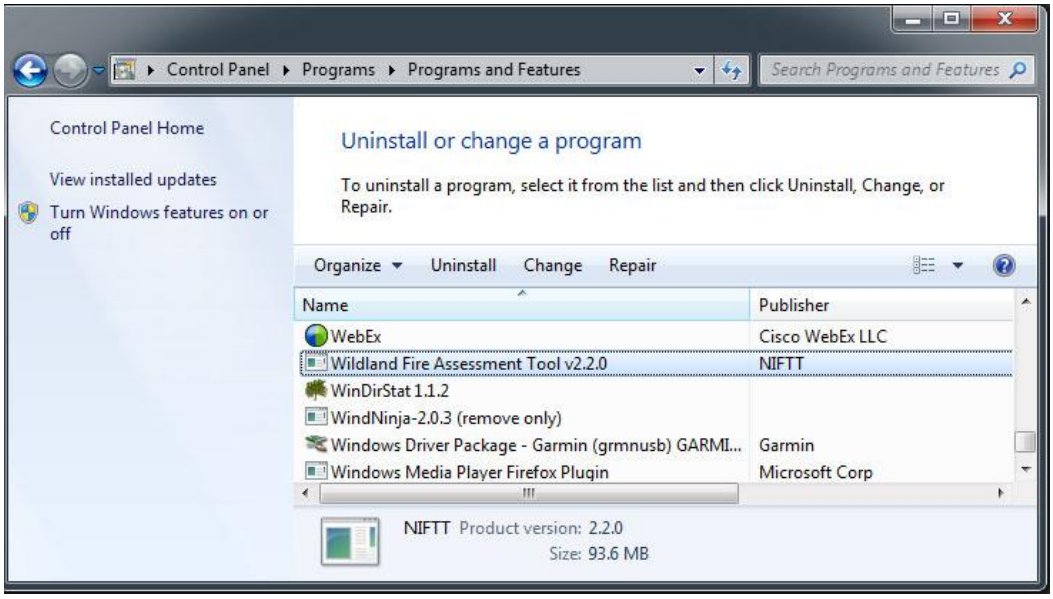

Fig 2 - Wildland Fire Assessment Tool v2.2.0 is installed.

While verifying that WFAT has been installed, it also necessary to verify that the WFAT FlamMap Module x64 has not been previously installed.

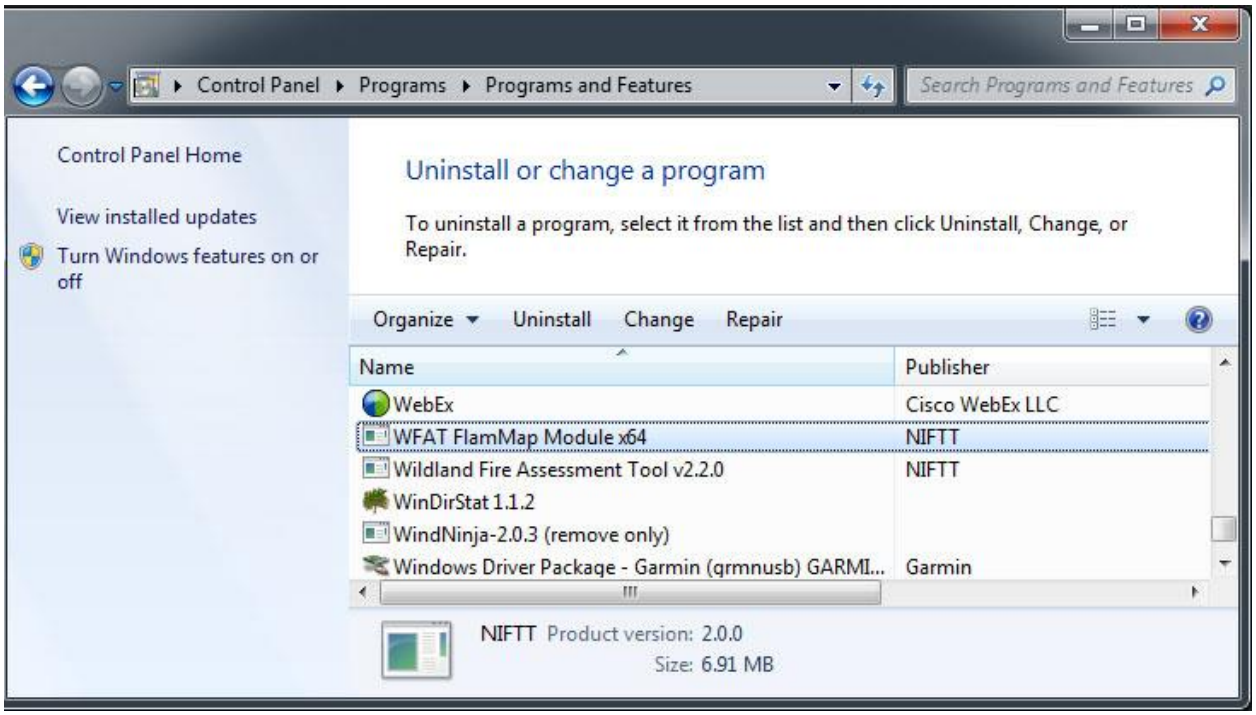

Fig 3 - WFAT FlamMap Module x64 has already been installed previously, so it will need to be uninstalled prior to running the WFAT FlamMap Module x64 install that's included with WFAT v 2.2.0.

After WFAT is installed, navigate with Windows Explorer to the folder that WFAT was installed to. By default on a 64 bit windows operating system this will be **C:\Program Files (x86)\NIFTT\Wildland Fire Assessment Tool v2.2.0**. Within the install folder navigate to the **Flammap Module x64 Install** folder, where you will find an installation package called **FlamMapModule_x64_Setup.msi.** Double-click on the MSI file to launch the FlamMap Module x64 installer. As the WFAT FlamMap Module x64 Setup Wizard runs, follow the instructions, clicking **Next** until the WFAT FlamMap Module x64 Setup Wizard allows you to select the installation folder, put in the same folder that WFAT was installed to. The default on a 64 bit windows operating system would be **C:\Program Files (x86)\NIFTT\Wildland Fire Assessment Tool v2.2.0.**

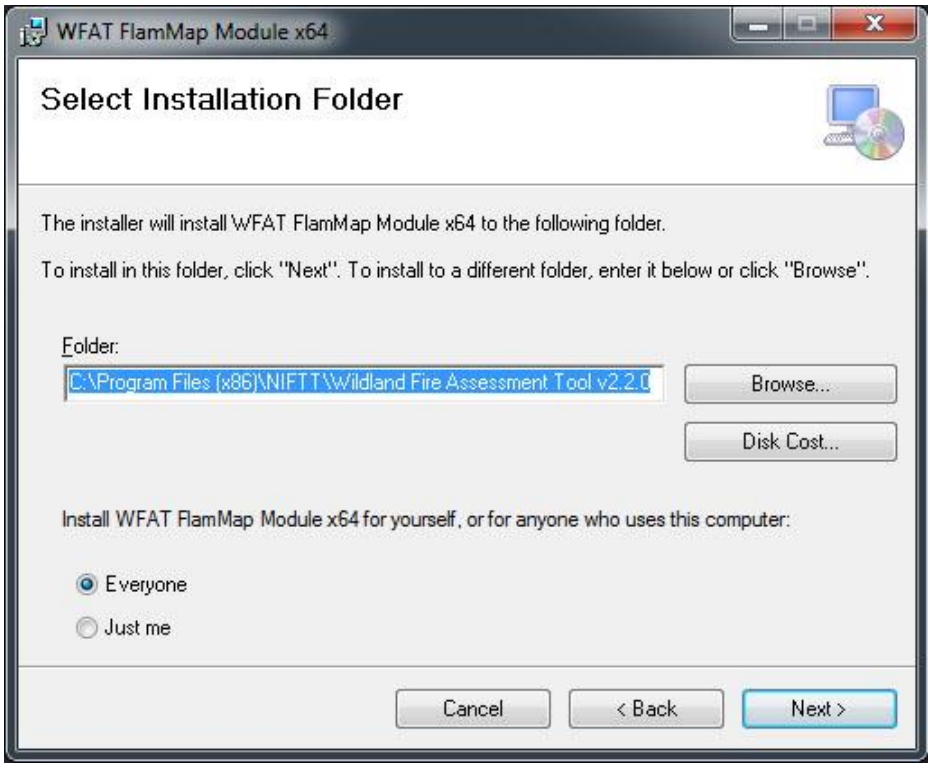

Fig 4 - Specifying the folder where WFAT was installed to when Selecting the Installation Folder for the WFAT FlamMap Module x64.

Continue clicking **Next** until the Setup Wizard indicates that the installation is complete, then click **Close** to exit the Setup Wizard.

Maximum size of input ArcGRIDs

The maximum size of input ArcGRIDs which WFAT can handle when running the FlamMap Module x64 is directly related to how much RAM the computer has. One option that can be used to increase the size of ArcGRIDS that WFAT can handle without increasing RAM is increasing the amount of Virtual Memory. To set the amount of virtual memory available on the computer, bring up your computer property dialog box from Windows Explorer. (We discussed how to do this earlier.) On the left, right click on **Computer**, then select **Properties** from the context menu.

Fig 5 - The Windows 7 Computer Properties dialog box showing that the computer has a 64 bit Operating System.

Click on **Advanced system settings** on the left to launch the *System Properties* dialog box. Click on the **Advanced** tab.

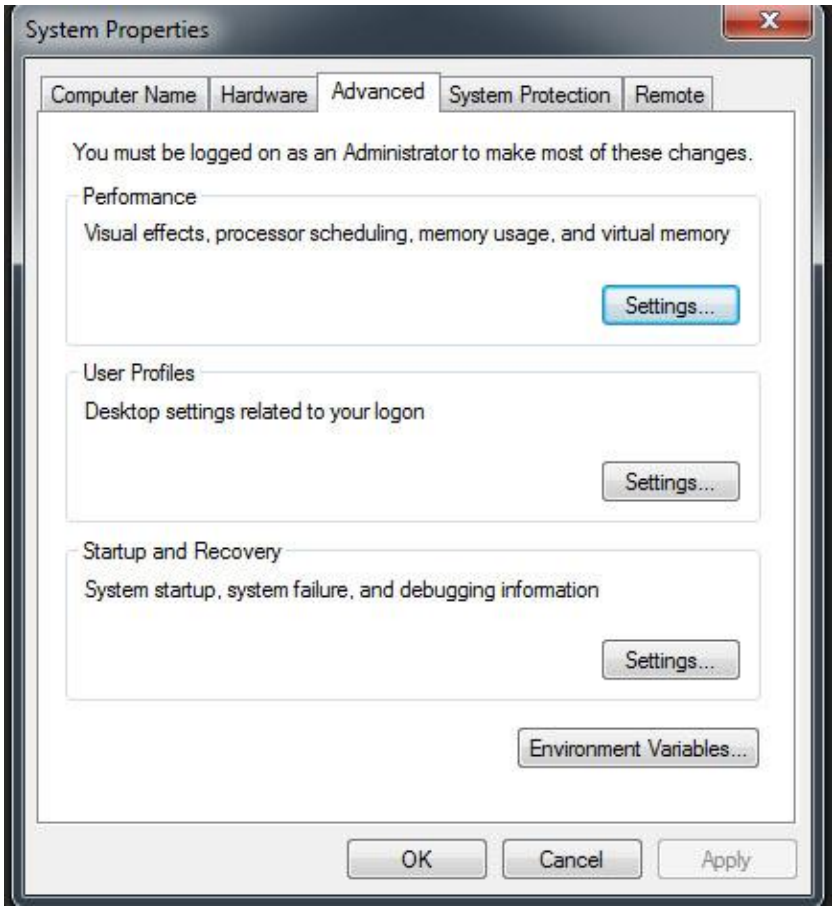

Fig 6 - The System Properties dialog box.

In the *Performance* section of the *Advanced* tab, clicking the **Settings** button will bring up the *Performance Options* dialog box, where you will select the **Advanced** tab.

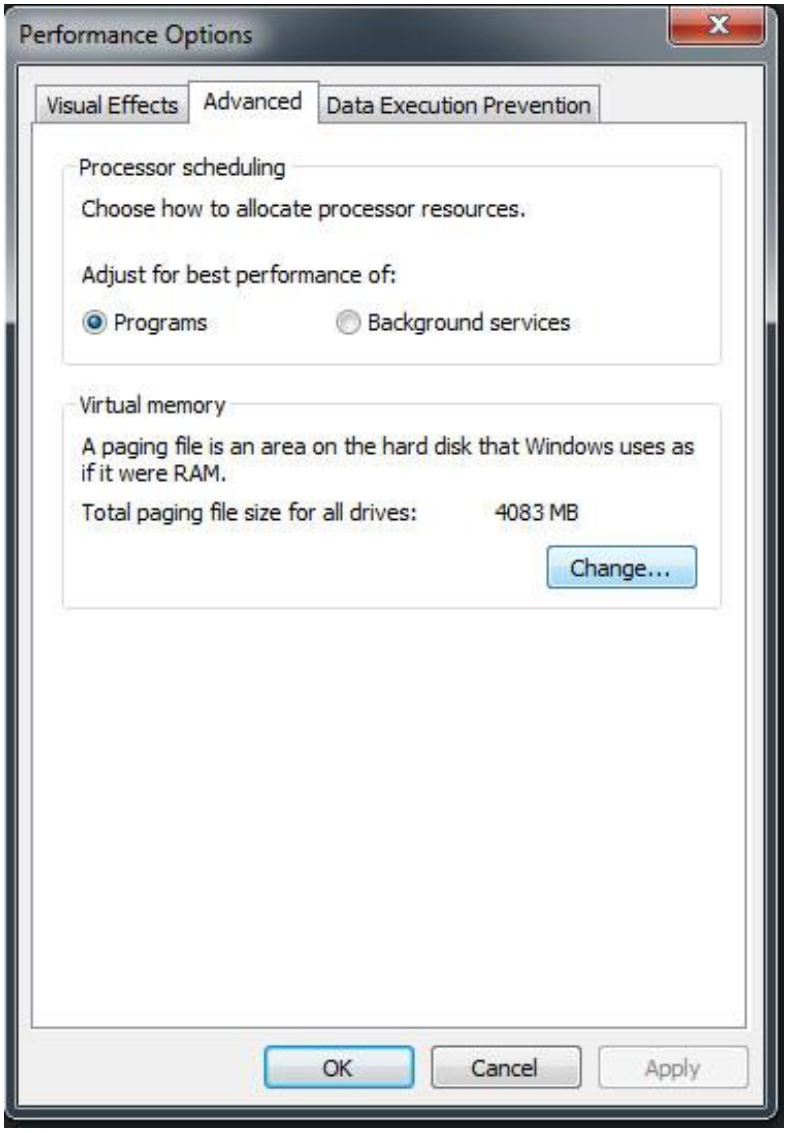

Fig 7 - The *Performance Options* dialog box's *Advanced* tab.

Click on the **Change** button in the *Virtual Memory* section to bring up the *Virtual Memory* dialog box.

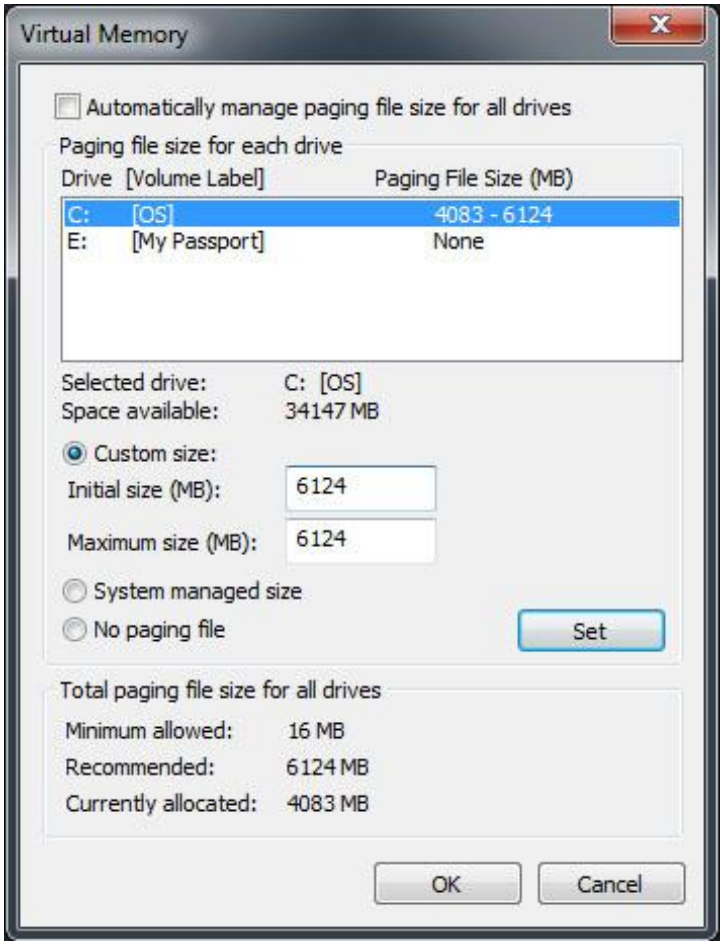

Fig 8 - The *Virtual Memory* dialog box.

Set the *Initial size* and *Maximum size* to the *Recommended* amount of virtual memory. Click **Set** and then **OK**. You will want to reboot your computer in order for the new virtual memory settings to take effect.

Running WFAT with FlamMap Module x64

Once the FlamMap Module x64 has been installed with WFAT, it will be utilized when WFAT is generating the fire behavior outputs. In order to run the FlamMap Module x64, WFAT will launch it in a 64 bit sub-process. This will be evident by the DOS window that appears.

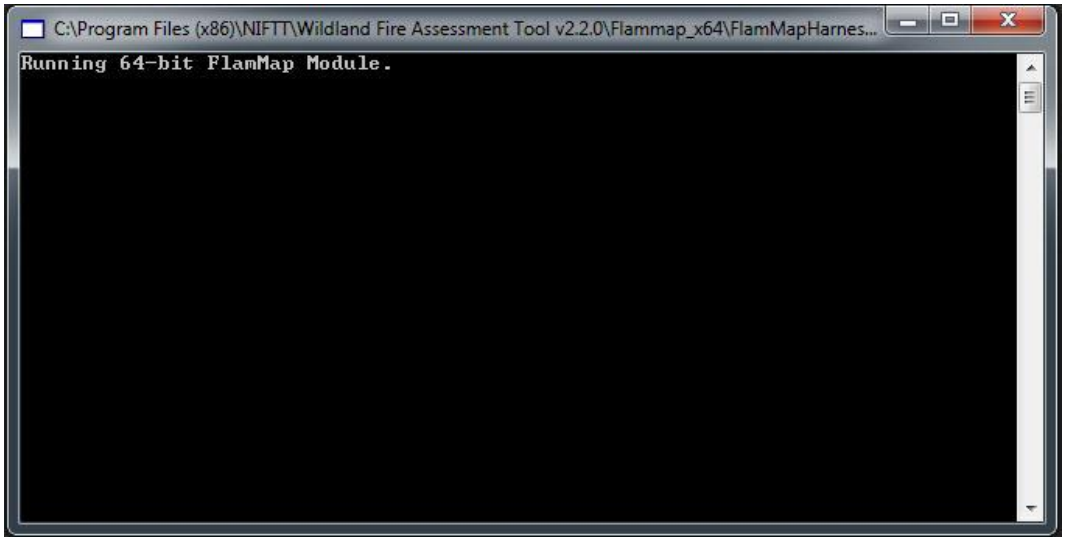

Fig 9 – WFAT running the FlamMap Module x64 in a 64 bit process.

While WFAT is running the FlamMap Module x64 on large datasets (millions of acres), it's recommended that you keep an eye on your computer's RAM usage. One way to monitor a computer's RAM usage is with the Task Manager. The Task Manager can be launched by hitting **<ctl><alt><del>.** On the Task Manager's *Performance* tab there are displays that show the computer's current and recent Physical Memory usage.

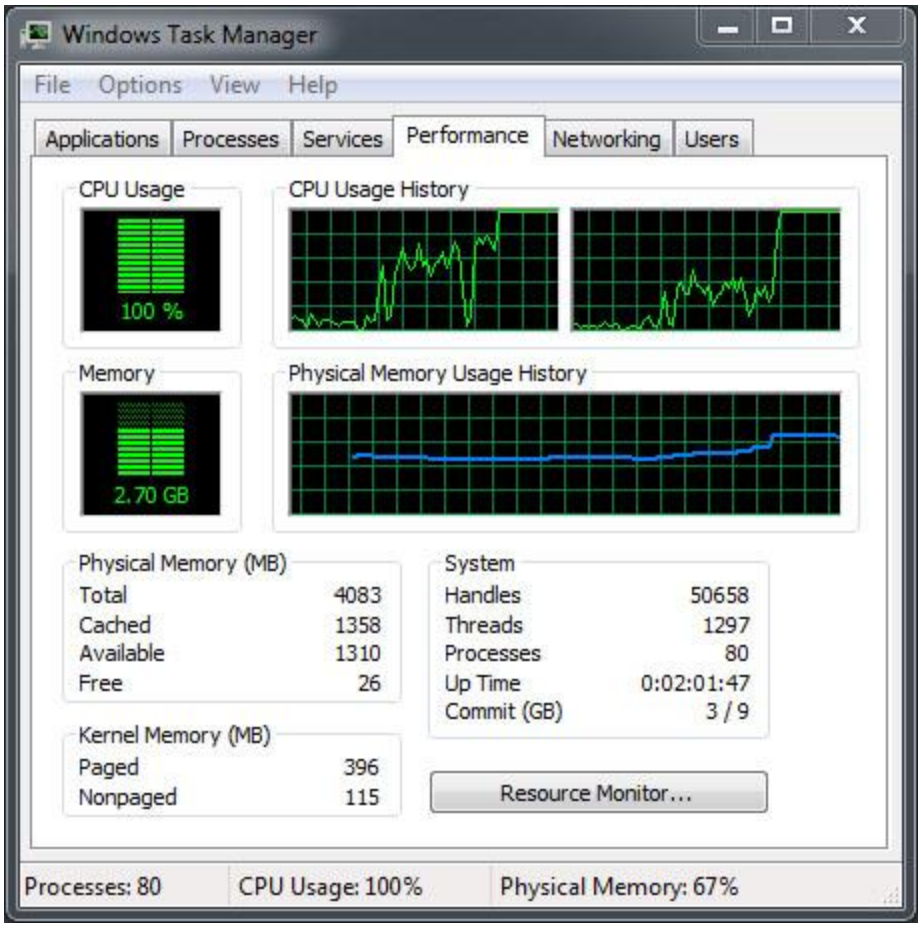

Fig 10 – Using the Task Manager to monitor RAM usage while WFAT is running the FlamMap Module x64.

On Windows 7 and Vista, the CPU Meter gadget can also be used to monitor RAM usage. The meter on the left records current CPU usage averaged for all the CPU cores. The meter on the right records the current RAM usage.

Fig 11 – The CPU Meter Gadget. The meter on the right shows current RAM usage at 68 percent.